

**Notice of Allowability**

Application No.

10/700,209

Examiner

Yuriy Semenenko

Applicant(s)

JONES, CHRISTOPHER C.

Art Unit

2841

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1/20/2006.
2. ☒ The allowed claim(s) is/are 1-4, 6, 7 and 9-15.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |  |
|---|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                               |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input type="checkbox"/> Examiner's Statement of Reasons for Allowance              |
|   | 9. <input type="checkbox"/> Other _____.   |

**Allowable Subject Matter**

***Response to Amendment***

1. Amendment filed on 01/20/2006 has been entered. In response to the Office Action dated 11/15/2005, Applicants has amended claims 1-4, 6 and 7. Claims 5, 8 and 16-19 have been canceled. Claims 10-15 and 20-27 had been withdrawn from consideration.

Claims 1-4, 6, 7, 9-15 and 20-27 are now pending in the application.

***Election/Restrictions***

2. Applicant's election with traverse of the group I, claims 1-13 in the reply filed on 12/27/2005 is acknowledged. The traversal is on the ground(s) that:

Statement " second microvia pad for the system can be any type pad and particularly without projection as claimed for a apparatus." is not seen to establish that the combination (i.e., Group 11) does not require particulars of the subcombination (i.e. Group 1) for patentability.

This is not found persuasive because:

Restriction is required between inventions (not claims), as claimed in all of the claims of the application. Independent claim 1 for an apparatus includes limitation " a second microvia pad having a projection...". There is not limitation "a second microvia pad having a projection" in independent claim 24 for a system. So such system can work with apparatus which does not include "a second microvia pad having a projection" it means with different apparatus. The inventions can be formulated in similar language (words) but be independent or distinct. The inventions are distinct, each from the other because of the following reasons: Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination (a system) as claimed does not require the particulars of the subcombination (a apparatus) as

claimed because second microvia pad for the system can be any type pad and particularly without projection as claimed for a apparatus. The subcombination has separate utility such as for connection chip and layer of multi-layer board, as explained in of Restriction and /or Election section of Office Action, filing date 11/15/2005.

Therefore, no further explanation or proof is necessary. The election of one invention following a requirement for restriction is mandatory even though applicant disagrees with the examiner.

The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Objections***

3. Claims 2-4, 6, and 7 amendment accordingly with examiner's objection filed 01/20/2006 is acknowledged and approved. Claim objections have been withdrawn.

### ***Response to Arguments***

4. Applicant's arguments are considered but are moot in view of allowance.

### ***Examiner's Amendment***

5.1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

4.2. Authorization for this examiner's amendment was given in a telephone interview with N.A. Talwalkar (Reg. No. 41339) on February 27, 2006.

4.3.1. Claim 9. (currently amended) A method comprising:  
fabricating a first metallization layer comprising a first microvia pad; and  
fabricating a second metallization layer comprising a second microvia pad  
wherein the [a] microvia pad having a base and a projection extending from the base;  
and fabricating an intermediate layer disposed between the first metallization layer and  
the second metallization layer, the intermediate layer comprising a microvia electrically

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coupled to the first microvia pad and to the second microvia pad wherein the [a]  
microvia having plurality of surfaces facing a plurality of surfaces of the projection.

4.3.2. Claim 10. (currently amended) [A] The method according to Claim 9, further comprising: fabricating an electroless conductor disposed between the microvia and the microvia pad, wherein the microvia pad and the microvia are composed of an electrolytic conductor.

4.3.3. Claim 11. (currently amended) [A] The method according to Claim 10, wherein fabricating the microvia pad comprises: fabricating the base; and fabricating the projection extending from the base after fabricating the base.

4.3.4. Claim 12. (currently amended) A system comprising:  
an integrated circuit package comprising:

a first metallization layer comprising a first microvia pad;

a second metallization layer comprising a second microvia pad having a projection extending in a direction toward the first microvia pad; and

an intermediate layer disposed between the first metallization layer and the second metallization layer, the intermediate layer comprising a microvia electrically coupled to the first microvia pad and to the second microvia pad; and

a double data rate memory electrically coupled to the integrated circuit package.

4.3.5. Claim 13. (currently amended) [A] The system according to Claim 12, wherein the microvia includes a plurality of surfaces facing a plurality of surfaces of the projection.

4.3.6. Claim 14. (currently amended) [A] The system according to Claim 12, wherein the projection is an integral portion of the second microvia pad.

4.3.7. Claim 15. (currently amended) [A] The system according to Claim 12, further comprising: a motherboard electrically coupled to the integrated circuit package and to the memory.

4.3.8. Claims 20-27 (cancelled)

#### ***Allowed Claims***

5.1. Claims 1-4, 6, 7 and 9-15 are allowed.

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5.2. The following is a statement of reasons for the indication of allowance:

Limitation "a second metallization layer comprising a second microvia pad having a projection extending in a direction toward the first microvia pad" in combination with other claimed limitations in independent claims 1 and 6 are not disclosed or suggested by the prior art.

5.3. Rejoining and allowing claims 9-15.

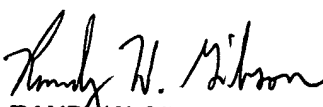
Claims 9-15 withdrawn from consideration pursuant to the restriction requirement, have been amended to include all of the allowable combinations and have been rejoined because they contain similar allowed subject matter to the elected claims as explained in the reason for allowance.

6.1. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yuriy Semenenko whose telephone number is (571) 272-6106. The examiner can normally be reached on 8:30am - 5:00pm.

5.2. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (571)- 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

5.3. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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RANDY W. GIBSON  
PRIMARY EXAMINER